

Spring 4-14-2016

## E&P Newsletter - April 14, 2016

Department of Engineering and Physics

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# E&P NEWSLETTER

April 14th, 2016

## UPCOMING EVENTS

- Departmental Honor Dinner Including Sigma Pi Sigma and Tau Beta Alpha 4/19
- Elections coming up
- ESC chapel every Thursday in Bennett 119
- Internship and Research Applications

SPS upcoming meeting on **Thursday April the 14th** at 11:30 in Bennett 219. There will be food for those who sign up! Contact Hannah Hamilton for more information at [hfh12a@acu.edu](mailto:hfh12a@acu.edu).

Wise dinner at 7 pm on **Tuesday April 26th**! Contact [mmc12b@acu.edu](mailto:mmc12b@acu.edu) for more information!

Look at the next page for an article about teaching in physics!

***Don't forget ESC chapel happens every Thursday at 11 am in Bennett 119! Come listen to your peers give chapel talks!***

### Engineering and Physics Honor Dinner

Plan to join us to honor your classmates who have distinguished themselves academically in our department! Sigma Pi Sigma introduction starts at 6:30 pm and Honor Dinner at 7:00 pm!

### Roadshow in May!

Do you like blowing things up? Making kids laugh? Come check out the Engineering and Science Roadshow. Contact Lauren Selensky at [les13b@acu.edu](mailto:les13b@acu.edu) or Dr. Tim Head at [tim.head@acu.edu](mailto:tim.head@acu.edu) for more information!

### Election coming soon

If you want to run for a leadership position in one of the department clubs, be looking for an email this month with instructions on how to nominate someone!

### Need some extra cash?

Check out this [google doc](#) with more information!

### Want to be involved in extra department projects?

The pinball machine is still going! Contact Garrett Shahan [gas12a@acu.edu](mailto:gas12a@acu.edu)

3-D printed prosthetic hand! Contact Shannon McNease [sem14b@acu.edu](mailto:sem14b@acu.edu)

### INTERESTED IN RESEARCH, INTERNSHIPS, OR GRAD SCHOOL?

If you go to google drive, click to the left "shared with me" you will see the "E&P News" folder. Inside of the folder are different folders labeled with the opportunity you're looking for. The flyers/documents are organized by the university or institution! Happy hunting!

# Solving the Physics Teacher Shortage

by Monica Plisch, PhysTEC Project Director



Students at PhysTEC site Florida International University

**O**ur nation is facing a crisis in science and mathematics education. The severe shortage of qualified STEM teachers, necessary to educate and inspire the future technical workforce, undermines our nation's economic competitiveness and technological leadership. The situation in physics is particularly alarming—most secondary physics teachers have neither the deep content knowledge nor the subject-specific pedagogical training needed to teach effectively. Each year more than 1400 new teachers are hired to teach physics, but only about 600 of these teachers have a major or minor in physics or physics education. Colleges and universities must educate 800 additional new physics teachers per year to meet the national need.

There are about 750 institutions in the United States that grant a bachelor's degree in physics. If each institution educated one more physics teacher per year,

the problem would be solved. The solution to the nationwide physics teacher shortage is within reach if physics departments become more engaged and see teacher education as part of their mission. The key to realizing this solution is a physics faculty member who cares about teacher education and is supported to take leadership in this area.

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The PhysTEC project has established a national coalition of more than 300 institutions that are committed to improving the education of future physics teachers, and identified over 700 faculty contacts at these member institutions who are passionate about educating physics teachers. If each member institution, with the support of their faculty champions, works to prepare one more physics teacher per year, the potential outcome is 300 additional new physics teachers per year.

PhysTEC has supported faculty champions to make improvements in teacher education at their institutions by offering conferences and workshops with leaders in the field. Going forward, the project will seek to foster institutional change more directly by offering resources to help

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# Teacher Shortage

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navigate institutional barriers and address attitudes that can hinder change. For example, negative attitudes about the teaching profession can discourage students from pursuing this option. PhysTEC is planning a communications campaign to share the experiences of physics majors who become teachers so that students and their faculty advisors can be better informed.

Some institutions are poised to increase by more than one physics teacher per year. Since 2001, the PhysTEC project has developed and refined models for teacher

education programs, and established over 40 supported sites that have more than doubled the number of graduates highly qualified to teach physics. Some supported sites have increased their numbers of physics teachers by as many as five or six per year above baseline numbers. The next generation of PhysTEC supported sites will incorporate lessons learned by the project to establish more of these thriving programs and help build the national infrastructure needed to solve the physics teacher shortage. 